

# CASE OF CARDIORESPIRATORY ARREST FOLLOWING REMOVAL OF CERVICAL CERCLAGE

Raheem M<sup>1</sup>, Orefice R<sup>1</sup>

<sup>1</sup>Dept of Obstetrics and Gynaecology, Centenary Hospital for Women and Children, Canberra Hospital

## CASE

A 30 year old gravida 5 para 1, presented to a tertiary unit in Canberra for removal of cervical cerclage under sedation as she could not tolerate the procedure as an outpatient. Her obstetric history was significant for a three consecutive miscarriages and one preterm birth at 28 completed weeks of gestation. Her past medical history was significant for poorly controlled type 2 diabetes mellitus (HbA1c of 11.5%), essential hypertension, endometriosis and polycystic ovarian syndrome.

The procedure was performed under sedation during which the patient became agitated. Following the procedure, she became acutely short of breath and hypoxic. Table 1 demonstrated the hypoxia and acute deterioration in renal function. Figure 1 demonstrates the Chest X-ray showed diffuse opacification of both lung fields. A diagnosis of amniotic fluid embolism was suspected and decision was made for an emergency caesarean section under general anaesthesia.

The patient received 80mg of rocuronium, 180mg of propofol for induction and despite being ventilated with 100% oxygen, had a relative hypoxia (Sats 85-90%). The procedure was uncomplicated and she remained stable intraoperatively. Post-operatively, she was transferred to ICU intubated and ventilated. On arrival in ICU, became progressed to cardiac arrest. Cardiopulmonary resuscitation (CPR) was commenced and arterial blood gas results showed hyperkalaemia with a potassium of 10mmol/L. She received 2 cycles of CPR and the hyperkalaemia was managed with insulin, dextrose, calcium gluconate, bicarbonate, which allowed return of spontaneous circulation.

During her admission in ICU, she developed severe cardiogenic shock (left ventricular ejection fraction of 10%) which was managed with a dobutamine infusion and oliguric renal failure managed with continuous renal replacement therapy. The repeat TTE showed moderate segmental systolic dysfunction with an LVEF of 35-40%. She was then discharged to the Coronary care unit (CCU) for cardiac monitoring. In CCU, the patient had a persistent tachycardia (managed with initially metoprolol and subsequently carvedilol) and pulmonary oedema (managed with frusemide). Her clinical condition improved significantly and she was discharged home day 8 post-operatively with a plan for follow-up with cardiology in 4 weeks and Gynaecology clinic in 6-8 weeks.

Table 1- Pathology findings following episode of shortness of breath

PaO2 54mmHg	pH 7.39	HCO3 18.2mmol/L
Base Excess 9.2mmol/L	Lactate 2.4mmol/L	Potassium 5.4mmol/L
Sodium 130mmol/L	PT 11	APTT 25
Fibrinogen 6.1	eGFR 59	Creatinine 109mmol/L

Figure 1 – Chest X-ray following episode of shortness of breath



## DISCUSSION

We report an interesting case of cardiac arrest following removal of a cervical cerclage. Several differential diagnoses were considered including Amniotic fluid embolism (AFE), myocardial infarction, pulmonary embolism and pre-eclampsia.

Amniotic fluid embolism (AFE) is a rare and life-threatening obstetric complication characterised by profound cardiovascular collapse, altered mental status and disseminated intravascular coagulation (DIC). The incidence reported is between 1-12 cases per 100,000 deliveries, with a high mortality rate ranging from 13.3-40%<sup>[1]</sup> Two large population-based retrospective cohort studies found that AFE was associated with increased maternal age (>35 years), caesarean delivery, instrumental

delivery, placenta praevia, placental abruption, eclampsia and foetal distress. Other risk factors included polyhydramnios, cervical laceration, uterine rupture<sup>[1];[2]</sup> Interestingly, only one case of non-fatal AFE was reported following removal of a cervical suture<sup>[3]</sup>

Given the rarity of AFEs, the diagnostic criteria has been recently debated. The Australian diagnostic criteria for AFE can be either clinical (acute hypotension or cardiac arrest, acute hypoxia or coagulopathy in the absence of any other potential explanation of signs and symptoms) or pathologic (presence of foetal squames or hair or debris in maternal pulmonary circulation)<sup>[4];[5]</sup> Since then, Clark and colleagues, together with the Society of

Maternal Fetal Medicine and the Amniotic Fluid Embolism Foundation reviewed the definition of AFE and concluded that AFE is characterised by four specific criteria that includes the following – sudden onset cardiorespiratory arrest or both hypotension and respiratory compromise, documentation of overt DIC, clinical onset during labour or within 30 minutes of delivery of the placenta and the absence of fever<sup>[6];[3]</sup>

## CONCLUSION

We report a case of cardiorespiratory arrest following removal of cervical cerclage in a non-labouring woman. The patient experienced cardiac arrest, hypotension, respiratory distress and renal dysfunction – all features associated with the diagnosis of AFE. However, given the lack of features of DIC and further histopathological investigation, the diagnosis of AFE cannot be confirmed.

## REFERENCES

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